



AE/TW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:
John D. Hottovy et al.

Serial No.: 10/660,990

Filed: September 13, 2003

For: Loop Reactor Apparatus and
Polymerization Processes with
Multiple Feed Points for Olefins
and Catalysts

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§ Group Art Unit: 1713
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§ Examiner: Lu, C. Caixia
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§ Atty. Docket: 210318US01
§ CPCM:0023/FLE
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January 3, 2007

Date

F. Clay Faries
F. Clay Faries

Sir:

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

This Reply Brief is being filed in response to the Examiner's Answer mailed on November 2, 2006. Since January 2, 2007, fell on a federal holiday, this Appeal Brief is believed to be timely filed. This Reply Brief addresses the Examiner's misunderstanding of the technology at issue, as well as the Examiner's continuing pattern of stretching the teachings of the prior art beyond their reasonable limits in order to reach the subject matter taught and claimed by Appellant.

Deficiencies of Double Patenting Rejections

In the Final Office Action, the Examiner formulated four separate double-patenting rejections. The Examiner rejected the present claims under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,239,235 (hereinafter Hottovy '235), U.S. Patent No. 6,806,324 (hereinafter Hottovy '324), U.S. Patent No. 6,743,869 (hereinafter Franklin), and U.S. Patent No. 6,815,511 (hereinafter Verser). However, the Examiner did not satisfy her burden of showing a correspondence between the present claims and the claims of the four cited patents. *See* M.P.E.P § 804. Further, Appellants respectfully remind the Board that the Examiner may not rely on the specification of the patent underlying the double patenting rejection as prior art in the obviousness determination. Here, the Examiner goes beyond what is permissible (to interpret the cited claims) in relying on the specifications of the cited patents to read limitations into the cited claims.

Appellants emphasize that features of the present claims are not obvious variants of the claims in the cited patents. For example, the present claims 1 and 24 generally recite that a plurality of monomer feeds are arranged substantially symmetrically around a loop reaction zone. In contrast, the Hottovy '235 claims, Hottovy '324 claims, Franklin claims, and Verser claims merely recite polymerizing at least one monomer in a loop reaction zone and are *not* directed to how the monomer is fed to the loop reaction zone. The cited claims make no reference to the number of monomer feeds or to an arrangement of monomer feeds. It is *not* obvious that the cited claims would incorporate more than one monomer feed or a

symmetrical arrangement, as presently claimed. *See* M.P.E.P § 804. Indeed, the cited references do not even contemplate the need or benefit of such a symmetrical spacing. Further, the size of the reactor as disclosed (and even if claimed which it is not) in the cited references does not dictate more than one monomer feed or a symmetrical arrangement.

In addition, the Examiner is clearly employing impermissible hindsight in suggesting that it would be obvious to symmetrically space multiple feeds to maintain a constant monomer concentration in the reactor. In view of the foregoing, Appellants respectfully request that the Board direct the Examiner to withdraw the double patenting rejection and allow the claims.

Independent Claims – Deficiencies of the § 102(b) Rejection based on Hottovy’235

Independent claim 1, as amended, recites “introducing an olefin monomer to a loop reaction zone through a plurality of monomer feeds, wherein the monomer feeds are substantially symmetrically arranged *around* the loop reaction zone.” (Emphasis added). Independent claim 24 recites “wherein the monomer feeds and the product take-offs are arranged substantially symmetrically *about* the loop reactor.” (Emphasis added). In contrast, Hottovy ‘235 is absolutely devoid of arranging monomer feeds and/or product take-offs *substantially symmetrically around* the loop reactor. Therefore, Hottovy ‘235 cannot anticipate claims 1 and 24, or their dependent claims.

In the Final Office Action, the Examiner asserted incorrectly that two feeds would *always* be symmetrical about the loop reactor. The Examiner contended that two feeds would at least have “C₂ symmetry” (i.e., mirror plane symmetry). However, contrary to the Examiner’s assertion, two feeds (or more) will *not* always be symmetrical. This is so when even considering the concept of the C₂ symmetry. After all, a loop reaction zone is typically not a simple loop. *See, e.g.*, Application, Figure 1. Instead, loop reaction zones typically have multiple vertical and horizontal legs or segments. *See, e.g.*, Application, ¶¶ 24 and 25; Figure 1. To be sure, the multiple dissimilar segments of the loop reactor make clear that two feeds will *not* always be symmetrical *around* a given loop reaction zone, as incorrectly asserted by the Examiner. In view of these reasons, Appellants respectfully request that the Board direct the Examiner to withdraw the rejection under 35 U.S.C. § 102 and allow the claims.

Dependent Claims – Deficiencies of the § 102(b) Rejection based on Hottovy’235

Furthermore, while the dependent claims are patentable because of their dependency on an allowable base claims, these dependent claims are also patentable by virtue of the subject matter they separately recited. For example claim 2 recites wherein the catalyst is fed to the loop reaction zone through a plurality of catalyst feeds. In contrast Hottovy ‘235 discloses only a single catalyst feed (positioned upstream of the impeller 22). *See* Hottovy, col. 4, lines 6-15. Further, appellants traverse the Examiner’s contention that it is necessary to have more than one catalyst feed to maintain a constant monomer concentration throughout the reactor. Indeed, Appellants believe that loop reactor systems, including those of the size of that disclosed in Hottovy ‘235, traditionally have not utilized more than one catalyst feed.

Claim 4 recites wherein the product take-offs (e.g., via continuous take-off mechanism 34) are substantially symmetrically arranged around the loop reaction zone. Hottovy '235 fails to disclose a symmetrical arrangement of product take-offs.

Claim 6 recites wherein the plurality of monomer feeds comprises at least one monomer feed per 800 feet of reactor length. Hottovy '235 is absolutely devoid of this feature. Appellants strongly traverse the Examiner's contention that such a feature must exist in Hottovy '235. *See* Examiner's Answer, page 6. Indeed, Appellants know of loop reactors (smaller and larger than those disclosed in the Hottovy examples) currently in operation that do not have at least one monomer feed per 800 feet of reactor length.

Claim 9 recites that measuring the concentration of the olefin monomer in the withdrawn portion (e.g., in conduit 36) of the fluid slurry, and adjusting the introduction of the olefin monomer (e.g., via control valve 32) in response to the measured concentration. In contrast, Hottovy '235 is absolutely devoid of this feature. Further, Appellants strongly traverse the Examiner's contention that such a feature *must* exist in Hottovy' 235. *See* Examiner's Answer, pages 5-6. Indeed, Appellants believe, based on the art at the time of the filing of the Hottovy '235, that at most, the monomer concentration in the Hottovy '235 system is measured in the monomer/diluent feed stream upstream of the reactor, and not measured in the reactor or at the reactor discharge.

Claim 10, which depends from claim 9, further states wherein the introduction of the olefin monomer is adjusted (e.g., via control valve 32) so that a different amount of the olefin monomer is fed at one monomer feed than the amount of the olefin monomer fed at another monomer feed. *See id.* Claim 14 recites wherein each of the monomer feeds (e.g., control valves 32) is separately controlled. *See id.* In contrast, Hottovy '235 merely mentions that the monomer is introduced to the reactor. Hottovy '235 plainly does *not* address the control scheme of the monomer feed, in general, much less the specific features recited. Further, Appellants traverse the Examiner's contention that such monomer feeds *must* be controlled separately. *See* Examiner's Answer, pages 5-6. Appellants strongly disagree with the Examiner's reasoning for such a characterization, and believe the reasoning to be inaccurate. *See id.* Appellants do not agree that such feeds *must* be controlled separately. Further, Applicants also traverse the Examiners incorrect assertion that the Hottovy' 235 reactor is a large capacity reactor. *See id.*

In view of the foregoing, Appellants respectfully emphasize that the present dependent claims are patentable over Hottovy '235 by virtue of the subject matter they separately recite. Accordingly, for the additional reason, Appellants respectfully request that the Board direct the Examiner to withdraw the rejection of dependent claims.

Examiner's Apparent Assertions of Inherency

In the Examiner's Answer, the Examiner stated that features recited in the present claims *must* be present in the Hottovy '235 system. For example, the Examiner stated that

“the concentration of the olefin monomer in the withdrawn portion of fluid slurry[from the reactor] *must* be measured,” and “that there *must* be multiple monomer feeds for monomers and catalyst around the rather long loop reactor at regular intervals.” *See* Examiner’s Answer, page 5 (emphasis added). However, if the Examiner relies on a theory of inherency, the extrinsic evidence must make clear that the missing descriptive matter is *necessarily* present, and that it would be so recognized by persons of ordinary skill. *In re Robertson*, 169 F.3d 743, 49 U.S.P.Q.2d 1949 (Fed. Cir. 1999). In contrast, here, these features are plainly not necessarily present in Hottovy ‘235 because many loop reactor systems in the art (of similar size to the Hottovy ‘235 reactors) do not possess these features, i.e., do not measure concentration of monomer in the reactor discharge, and do not have more than one monomer feed or more than one catalyst feed. The Examiner has failed her evidentiary burden regarding the principle of inherency. *See Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

Request Removal of Kendrick

In the Final Office Action, the Examiner rejected claims 1-4, 6, 7, 9-15, and 21-27 under 35 U.S.C. § 102(b) as being anticipated by Kendrick et al. (US 2002/0173598 A1, now US Patent No. 6,833,415). However, this rejection is moot because Appellants have elected to remove Kendrick et al. (US 2002/0173598 A1, now US Patent No. 6,833,415). Kendrick is not valid prior art because Appellants, in a previous Response (which is herein incorporated by reference), elected to remove Kendrick et al. (US 2002/0173598 A1, now issued as US 6,833,415) under 37 C.F.R. § 1.131. *See* Response to Final Office Action Mailed February

24, 2005, pages 10-17. Appellants respectfully assert that the previously-submitted Rule 131 Declaration and the accompanying exhibits sufficiently establish an earlier date of the invention of the subject matter disclosed and claimed in the present application. *See* Rule 131 Declaration of Donald W. Verser; Exhibits C, D, and E. These documents establish conception prior to the effective dates of the cited reference and, furthermore, establish diligence during the critical period from just prior to the effective date of the cited reference until constructive reduction to practice of the present application. *See* 37 C.F.R. § 1.131(b); M.P.E.P. §715.07(III). Therefore, Appellants believe that the cited reference should be removed pursuant to 37 C.F.R. § 1.131, the corresponding rejection withdrawn, and the claims allowed.

Appellants Decline to Provoke an Interference with Kendrick et al. (US 6,833,415)

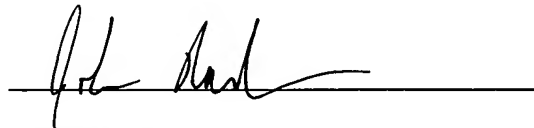
With regard to Kendrick et al. (US 6,833,415), Appellants believe the appropriate path is to remove the Kendrick et al. (US 6,833,415) via the previously-submitted Rule 131 Declaration, as discussed above. If the Examiner disagrees with Appellants and believes that “the reference is claiming the same patentable invention,” and therefore, the previously-submitted “declaration of June 27, 2005 is inappropriate under 37 CFR 1.131(a),” it is the Examiner’s responsibility to initiate the interference, not Appellants. *See* M.P.E.P. Chapters 800 and 2300. Appellants respectfully remind the Board that the Examiner is required to either remove the reference under 37 C.F.R. § 1.131 or provoke an interference. *See* M.P.E.P. § 2306. Appellants note that if the Examiner provokes an interference, the Examiner is required to suggest claims for the interference. *See* M.P.E.P. Chapter 2300.

Conclusion

Based upon the above points of clarification in conjunction with the arguments made in the previously filed Appeal Brief, Appellants believe that the claims are clearly allowable over the cited art. The Examiner's rejections, therefore, cannot stand. Appellants respectfully request that the Board withdraw the outstanding rejections and pass the present application to allowance.

Respectfully submitted,

Date: January 3, 2006

A handwritten signature in dark ink, appearing to read "John M. Rariden", is written over a horizontal line.

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